BBB and RPi2/3 Wireless Notes

The Raspberry Pi 3 Wireless is onboard and does not require any additional hardware. If you need a wireless node this would be the suggested board to use. For the BBB and the RPi2 I would suggest a wired to wireless adapter that plugs into the boards Ethernet connector and, to the board, appears as if it is a wired connection and no special software is required. This also eliminates the need for a USB hub on the BBB as it only has one USB connection.

Here are some possible wire to wireless adapters for use with the BBB or RPi2 available at amazon.com:

~~Vonets VAR11N - $16.60 - powered from USB or 5 volt~~ Not recommended

IOGEAR GWU627 - $34.49
http://www.amazon.com/IOGEAR-Universal-Ethernet-Adapter-GWU627/dp/B004UAKCS6

Netgear N600 WNCE2001 - $39.95
http://www.amazon.com/gp/product/B005N6XBDO/

All of these adapters will connect to your wireless network and have wired Ethernet which will connect to your Allstar server Ethernet port. No special setup is required on the server when using these external adapters.

Update – although it has been reported that the Vonets VAR11N works I was not successful in using one so I returned it. It would not connect to my wifi router in bridge mode and the WIFI was very flakey in router mode. You mileage may vary but be aware that it is typical Chinese electronics and has virtually no support.

WIFI on the Pi3

A hamvoip package for utilizing wireless on the RPi3 is now available. This package **ONLY** works on the RPi3 and with the current RPi2-3 1.02beta download on the hamvoip.org website. So far tests show that wireless on the Pi3 works very well and has good range. If you would like to use wireless on the RPi3 download this package to your RPi3.

Web download -

https://hamvoip.org/downloads/hamvoip-wireless-config-0.1-7.pkg.tar.xz

Or on your Pi3 go to the the root directory

cd /root

then

wget https://hamvoip.org/downloads/hamvoip-wireless-config-0.1-7.pkg.tar.xz

Then install the package with the following command

pacman -U --force hamvoip-wireless-config-0.1-7.pkg.tar.xz

Also an important addition to eliminate CRDA messages and hangups at boot please install the following packages.

Enter at the linux prompt -

pacman -Sy crda iw wireless-regdb

This will install these three packages. Again this only needs to be installed in the V1.02 RPi2/3 beta version.

What is CRDA?

CRDA domain is relevant for choosing the permitted wireless channels for a given country. Not all channels are permitted in all countries. For Europe has channel 12 and 13, which are not permitted in North America.

Although it does not seem to matter in the US, you should uncomment your country designator in /etc/conf.d/wireless-regdom

#WIRELESS_REGDOM="US"   - remove the # in this line for US

when done, execute:

wireless-setup.sh

Select your wireless access point and give the passphrase. It will then give you further instructions and ask you to disconnect the wired connection. When the system is rebooted it will be using the wireless connection.

Note that the wireless connection will be a new local IP address. You should hear this from your radio if you had everything setup in the wired mode previously. You could also get this IP address from your router or by reading the CW from the LED on the board.

Another option is an inexpensive HDMI monitor and wireless keyboard attached to the Pi3. This would allow changing the connections, checking status, and doing everything you would normally do with a console connection to Linux. Here is what I use, it is great for demos also.

HDMI monitor -

https://www.amazon.com/gp/product/B012ZRYDYY/ref=oh_aui_detailpage_o01_s00?ie=UTF8&psc=1

Keyboard -

https://www.amazon.com/gp/product/B00I5SW8MC/ref=oh_aui_detailpage_o01_s00?ie=UTF8&psc=1

Note when using the monitor you may want to change the framebuffer size in /boot/config.txt

framebuffer_width=720 #1280 former value
framebuffer_height=480 #720 former value

While port forwarding is not necessary especially in mobile nodes if you don't have it enabled you will only be able to connect outbound. To setup port forwarding first make the assigned wireless IP address permanent in your router. Every router does this differently but most all have the capability based on the Pi boards MAC address to come up on the same IP every time it is booted. Once you have that setup if you desire port forwarding you can set that up pointing to the permanently assigned wireless IP address.

There is a "wireless-control.sh" script to enable and disable the wifi interface as well as showing status.

Example screen for selecting wireless access point -
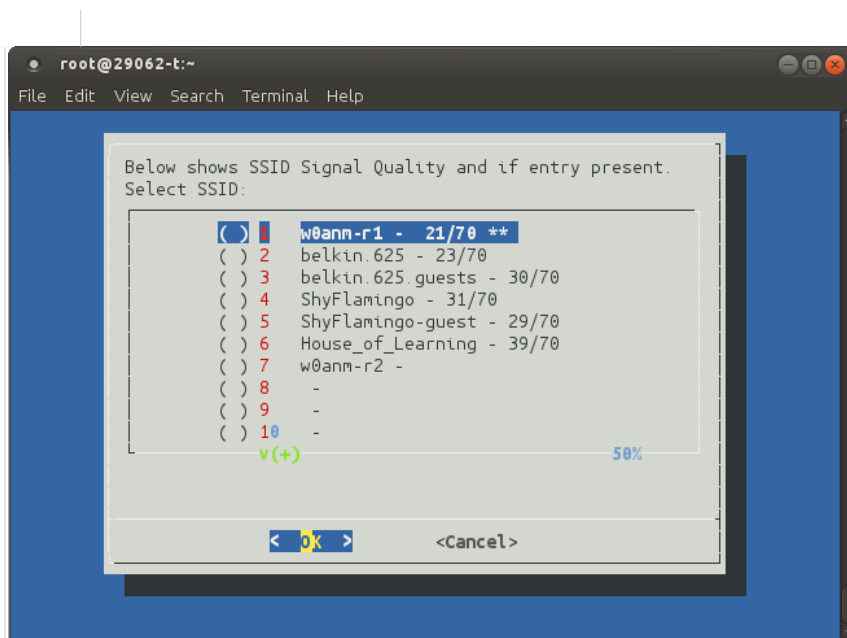
Wireless access point definitions are stored in:

/etc/wpa_supplicant/wpa_supplicant_custom-wlan0.conf

The entries you make with wireless-setup.sh are cumulative. When booting up in wireless mode each entry in order will be tried for connection until a good one is found. This can cause confusion when a local wifi that is always on is first on the list and would always be selected. If you wanted to connect to a phone hotspot for testing and you have the home wifi first in the list it will never connect to the phone. You have two options use a script to delete all entries or manually edit the /etc/wpa_supplicant/wpa_supplicant_custom-wlan0.conf file. If you are not experienced in editing files it would be safer to delete the file and reenter the wifi devices in the order you desire.

To clear the file run the following script -

clear_wpa_passwd_file.sh

Then proceed to do the wireless setup again in the order you desire.

You can look at the status of a connection including its IP address by selecting the status option in the wireless-control.sh script.

Thanks to Chris, W0ANM for getting this going on the Pi 3. This code will be included as part of the upcoming V2.0 release.

Tests so far show that the Pi3 WIFI works extremely well.